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| EXAMINER |
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MITCHELL, JASON D

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2193

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
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| 3 MONTHS                               | 04/03/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/611,726             | PAUL ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Jason Mitchell         | 2193                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 16-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 16-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Claims 1-12 and 16-20 are pending in this application.

### *Response to Arguments*

2. **Applicant's arguments filed have been fully considered but they are not persuasive.**

3. In the last paragraph on pg. 7, Applicant states:

The Koelma reference lacks any indication that it was published and does not include any evidence of a date of publication. Therefore, the Koelma reference can not be relied upon as prior art under 35 USC § 102. See MPEP § 2128.

Examiner retrieved this document from the ACM Digital Library, which, indicates this article was published in "Pattern Recognition Letters" vol. 15, Issue 11 dated November of 1994. Applicant has not provided any evidence that this is not the case, consequently Examiner maintains that the reference is valid prior art.

4. In the third and fourth paragraphs on pg. 8, Applicant states:

... It is asserted that the Koelma hierarchical data flow graphs are image processing chains. It is also asserted that relating the image processing chain to a clinical protocol is taught by the statement that "[v]isual programs can be stored and retrieved as visual programs or they can be stored as C-programs." Koelma does not does not teach or suggest relating an image processing chain to a clinical protocol because the Koelma reference is simply stating that visual programs can be stored in two different formats. The visual programs of Koelma are actually the hierarchical data flow graphs in visual format. The visual programs are not clinical protocols.

The Koelma reference does not disclose or suggest clinical protocols; therefore, the Koelma reference can not disclose relating the image processing chain to a clinical protocol. It is asserted in the rejection of claim 4 that a single visual function

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is a clinical protocol. Rather, Koelma discloses that "a hierarchical structure in the data flow graph can be created by combining several functions into a single visual function with its own user defined icon." The single visual function with its own user defined icon is just another function in a data flow graph and, thus, the single visual function is not a clinical protocol

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Specifically, Applicant has not asserted any functional difference between 'a clinical protocol' and the cited 'visual program'.

The first paragraph on pg. 9 of Applicant's specification reads:

Information about this user-selected chain is stored in the clinical protocol database of the system when the protocol is saved. Later when the system is configured for that particular protocol, an image-processing chain (or script file) for that protocol from the database can be passed onto the image-processing module in the scanner. Thus the behavior of the image-processing module can be changed at runtime.

Examiner does not recognize any significant, claimed distinction between this disclosure and the cited passages in Koelma (pg. 9, par. 1; pg. 8, par. 5). As noted by Applicant, Koelma's Visual programs are 'hierarchical data flow graphs' (or image processing chains) which are stored, and later preformed. Thus it can be seen that Koelma's Visual Programs proved the functionality disclosed for Applicant's 'clinical protocols' and thus can be properly mapped to the limitation.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-2, 4-6, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by “A visual programming interface for an image processing environment” by Koelma and Smeulders (Koelma).**

6. **Regarding Claim 1:** Koelma discloses a method for dynamically controlling the sequence of execution of image processing algorithms (Title “A visual programming interface for an image processing environment”), without recompiling an image processing computer program (pg. 13, Section 5.6 “the program can be re-executed immediately upon changes made to it”), the method comprising:

providing a plurality of image processing elements as self-contained modules, which can be executed individually in a plurality of possible sequences (pg. 8, “The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library (or libraries) known to the interface.”);

providing an image processing chain in a script capable of execution by a script interpreter in a computer arranged to receive raw image data (pg. 8, “The worksheets (figure 3) are used to construct hierarchical data flow graphs from the functions in a library”);

wherein the image processing chain determines a selected sequence of execution of the image processing elements (pg. 8, "The constructed data flow graph is executed with the aid of the C-interpreter."); and

relating the image processing chain to a clinical protocol, which is subsequently executed by the computer while running a compiled image processing computer program to process image data (pg. 9, "visual programs can be stored and retrieved as visual programs or they can be stored as C-programs.").

7. **Regarding Claim 2:** The rejection of claim 1 is incorporated; further Koelma discloses the plurality of processing elements in an image processing chain are stored in a repository of image processing elements for easy access during image processing chain editing operations (pg. 8, "The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library (or libraries) known to the interface.").

8. **Regarding Claim 4:** The rejection of claim 1 is incorporated; further Koelma discloses the image processing chain be related to any one of a plurality of clinical protocols (pg. 8, "combining several functions into a single visual function").

9. **Regarding Claim 5:** The rejection of claim 1 is incorporated; further Koelma discloses the method is carried out by an administration tool comprising a plurality of image processing tools which can be installed on the computer associated with the item

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of medical imaging equipment (pg. 8, "The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library") and executing the image processing application to process the raw data into an image that can be displayed (pg. 8, "The constructed data flow graph is executed with the aid of the C-interpreter.").

10. **Regarding Claim 6:** The rejection of claim 1 is incorporated; further Koelma discloses the plurality of image processing elements are generated in a tool command language (pg. 5, Section 4 "The visual programming interface has been built on top of the image processing environment SCIL\_Image").

11. **Regarding Claim 16:** Koelma discloses a method for adding an image processing algorithm to a compiled image processing computer program (pg. 5, "The addition of new image processing functions should become almost trivial"), without recompiling the image processing computer program (pg. 13, Section 5.6 "the program can be re-executed immediately upon changes made to it"), the method comprising:

providing a plurality of image processing elements as self-contained modules which can be executed individually in a plurality of possible sequences (pg. 8, "The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library (or libraries) known to the interface."); and

providing an image processing chain in a script capable of execution by a script interpreter in a computer arranged to receive raw image data (pg. 8, "The worksheets

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(figure 3) are used to construct hierarchical data flow graphs from the functions in a library”);

adding a new image processing element (pg. 5, “The addition of new image processing functions should become almost trivial”);

configuring the image processing chain to determine the sequence of execution of the image processing elements including the new image processing element (pg. 13, Section 5.6 “the program can be re-executed immediately upon changes made to it”); and

relating the image processing chain to a clinical protocol, which is subsequently executed by the computer while running the compiled image processing computer program to process image data (pg. 9, “visual programs can be stored and retrieved as visual programs or they can be stored as C-programs.”).

12. **Regarding Claim 19:** The rejection of claim 16 is incorporated; further Koelma discloses the plurality of processing elements in an image processing chain are stored in a repository of image processing elements for easy access during image processing chain editing operations (pg. 8, “The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library (or libraries) known to the interface.”).



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13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claims 3 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over “A visual programming interface for an image processing environment” by Koelma and Smeulders (Koelma) in view of US 6,078,967 to Fulghum (Fulghum).**

15. **Regarding Claims 3 and 20:** The rejections of claims 1 and 19 are incorporated, respectively; further Koelma does not disclose the repository of image processing elements (pg. 8, “The library handler (figure 2)”) is stored on a memory storage device dedicated to that function and accessible by the computer.

16. Fulghum teaches storing ‘enabling algorithms’ on a dedicated memory storage device (col. 2, lines 50-56 “storing an enabling algorithm in a dedicated storage device of the peripheral device”)

17. It would have been obvious to a person of ordinary skill in the art at the time of the invention to store Koelma’s enabling algorithms (pg. 8, “the image processing functions in the library”) on a dedicated storage device, as taught by Fulghum (col. 2, lines 50-56 “a dedicated storage device of the peripheral device”), in order to “a hierarchical overview of the image processing functions in the library” (Koelma pg. 8) “in

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a manner that does not require a customer to administer a hard disk drive" (Fulghum col. 2, liens 57-67).

**18. Claims 7 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over "A visual programming interface for an image processing environment" by Koelma and Smeulders (Koelma).**

**19. Regarding Claim 7:** The rejection of claim 1 is incorporated; further Koelma discloses image processing chains generated with a text editor (pg. 10, Section 5.4 "in a textual interface, explicit variable names are used to denote intermediate results in an application."; also see Fig 5) as a less preferred embodiment (pg. 10, Section 5.4 "It is our experience that data flow graphs are a more natural way for a layman to express image processing applications than textual interfaces").

MPEP 2123.II states:

Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994) (The invention was directed to an epoxy impregnated fiber-reinforced printed circuit material. The applied prior art reference taught a printed circuit material similar to that of the claims but impregnated with polyester-imide resin instead of epoxy. The reference, however, disclosed that epoxy was known for this use, but that epoxy impregnated circuit boards have "relatively acceptable dimensional stability" and "some degree of flexibility," but are inferior to circuit boards impregnated with polyester-imide resins. The court upheld the rejection concluding that applicant's argument that the reference teaches away from using

epoxy was insufficient to overcome the rejection since "Gurley asserted no discovery beyond what was known in the art." 27 F.3d at 554, 31 USPQ2d at 1132.).

Accordingly it is Examiner's position the claim is unpatentable over Koelma's disclosure of generating chains with a text editor (see e.g. Fig. 5).

20. **Regarding Claim 17:** The rejection of claim 16 is incorporated; further Koelma discloses relating the modified image processing chain to a clinical protocol, which is subsequently executed by the computer while running the compiled image processing computer program to process image data (pg. 9, "visual programs can be stored and retrieved as visual programs or they can be stored as C-programs.").

21. Further, as discussed in the rejection of claim 7, the claim is unpatentable over Koelma's disclosure of generating chains with a text editor (pg. 10, Section 5.4 "in a textual interface, explicit variable names are used to denote intermediate results in an application."; also see Fig 5).

22. **Regarding Claim 18:** The rejection of claim 17 is incorporated; further Koelma discloses the method is carried out by an administration tool comprising a plurality of image processing tools which can be installed on the computer associated with the item of medical imaging equipment (pg. 8, "The library handler (figure 2) gives a hierarchical overview of the image processing functions in the library") and executing the image processing application to process the raw data into an image that can be displayed (pg. 8, "The constructed data flow graph is executed with the aid of the C-interpreter.").

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23. **Claims 8-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over “A visual programming interface for an image processing environment” by Koelma and Smeulders (Koelma) in view of Applicant admitted prior art (AAPA).**

24. **Regarding Claim 8:** The rejection of claim 1 is incorporated; further Koelma does not disclose that raw image data is received from an item of medical imaging equipment but does disclose that “[image processing] applications are frequently encountered in ... medical ... image processing” (see pg. 4).

25. Further, in the paragraph bridging pp. 1 and 2 of the instant specification, AAPA indicates that it was known in the art, at the time of invention, to apply image processing algorithms, as taught by Koelma (pg. 8, “the image processing functions in the library”), to raw image data received from an item of medical imaging equipment (pg. 1 “Medical imaging equipment ... is used to obtain, process and store image data which can be processed and displayed as images. ... Image processing algorithms are applied to the raw image data, so that the image can be better viewed and analyzed by the medical professional.”)

26. Accordingly, It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply Koelma’s “image processing functions” designed in Koelma’s “visual programming interface” to raw image data received from an item of

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medical imaging equipment, as disclosed by AAPA (pg. 1 "Medical imaging equipment ... is used to obtain, process and store image data which can be processed and displayed as images), because "The user interface of an image processing environment is a key aspect of the proper functioning of such an environment" and because "A good user interface can significantly reduce the development effort of new image processing applications" (Koelma pg. Section 1).

**27. Regarding Claims 9 and 11-12:** The rejection of claim 8 is incorporated for each claim; further Applicant acknowledges that CT scanners, ultrasound imaging machines, and x-ray RAD scanners were all known examples of medical imaging devices, and thus as discussed in the rejection of claim 8, It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply Koelma's "image processing functions" designed in Koelma's "visual programming interface" to raw image data received from such medical imaging equipment

**28. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over "A visual programming interface for an image processing environment" by Koelma and Smeulders (Koelma) in view of AAPA and further in view of US 5,005,578 to Greer et al. (Greer).**

**29. Regarding Claim 10:** The rejection of claim 8 is incorporated; further Koelma and AAPA do not disclose receiving raw image data from an MR scanner.

30. Greer teaches processing raw image data received from an MR scanner (col. 3, lines 61-64 “machine-independent software modules which assess and correct distortion, and which facilitate examination, manipulation and quantitative measurement of MR images”).

31. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply Koelma’s “image processing functions” designed in Koelma’s “visual programming interface” to raw image data received from an MR scanner, as disclosed by Greer (col. 3, lines 61-64), because “The user interface of an image processing environment is a key aspect of the proper functioning of such an environment” and because “A good user interface can significantly reduce the development effort of new image processing applications” (Koelma pg. Section 1).

### ***Conclusion***

32. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Mitchell whose telephone number is (571) 272-3728. The examiner can normally be reached on Monday-Thursday and alternate Fridays 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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